Virginia SCC Testimony, September 1, 2026

My name is Diane Cherry, and I am Deputy Director of MAREC Action, the Mid-Atlantic Renewable Energy Coalition. MAREC represents more than 50 utility-scale solar, wind, and energy storage developers, owners, operators, and manufacturers working across Virginia and the broader PJM region. Our members develop, finance, build, insure, own, and operate energy projects across the country. Importantly, MAREC represents the competitive segment of the industry and does not represent regulated utilities in the PJM region.

Virginia needs energy storage to help meet rising demand and maintain a reliable grid. ***But how these projects are designed and what they ultimately cost ratepayers also matters.*** Storage must be built and operated safely, but requirements that increase costs, expand project footprints, or reduce the amount of storage that can be developed should be supported by a demonstrated safety benefit.

My comments today focus on battery container spacing, configuration, and site design, and specifically on the role of NFPA 855 and large-scale fire testing in determining safe project configurations.

As we begin today's technical conference, it is important to explain how we arrived here and why the General Assembly directed the Commission to examine this issue.

As part of its Renewable Portfolio Standard procurements, Dominion has historically exercised broad discretion to establish safety and design requirements for projects responding to its RFPs. Until its 2026 RFP, Dominion required battery projects to meet spacing and firewall specifications that the industry considers excessive and not supported by a demonstrated safety benefit. These requirements increase project footprints and costs, reduce the amount of storage that can fit on a site, and, in some cases, prevent otherwise viable projects from moving forward.

These concerns were raised during Dominion's 2025 RPS proceeding. The General Assembly subsequently addressed the issue through HB 895 and SB 448, directing the Commission to examine storage safety requirements and resolve the matter in the 2026 RPS proceeding.

To be clear, MAREC and its members strongly support rigorous safety standards. We supported the legislation's requirement that projects comply with NFPA 855, the nationally recognized standard developed specifically for stationary energy storage. NFPA 855 is updated every three

years through a consensus process involving fire-safety experts, code officials, manufacturers, and other industry participants.

NFPA 855 uses large-scale fire testing and project-specific analysis to determine safe equipment configurations. Depending on the equipment and test results, a project may use different container spacing, firewalls, ventilation, detection systems, or other safeguards.

Dominion's prior requirements did not come from this battery-specific framework. Before its 2026 RFP, Dominion required 25 feet between battery containers. During the 2025 RPS hearing, the company acknowledged that this distance was not based on battery-specific research or testing. Instead, it originated with guidance for medium-voltage transformers and had remained in place since Dominion began its storage procurements in 2021.

That distinction matters. ***NFPA 855 evaluates the actual battery equipment and proposed configuration. A blanket 25-foot distance does not.*** The question is whether 25 feet provides an additional safety benefit when large-scale fire testing demonstrates that a different configuration can operate safely.

Dominion changed its approach in the 2026 RFP after HB 895 and SB 448 required projects complying with NFPA 855 to be eligible to participate. It remains unclear, however, whether Dominion would have modified its requirements without the legislation or whether it may continue to favor its prior configuration when evaluating projects.

My remarks focus primarily on Dominion because it has conducted storage procurements since 2021. Appalachian Power is only now conducting its first storage RFP.

Dominion's prior requirements also appear to be out of step with national practice. MAREC members develop, finance, and operate storage projects across the country, and we are not aware of another state or utility imposing a comparable universal 25-foot distance regardless of the equipment, configuration, or large-scale fire-test results.

The question before the Commission, therefore, is not whether Virginia should compromise safety to reduce project costs. It is whether a utility should impose greater spacing, firewalls, or other site-design requirements after a project has demonstrated through NFPA 855 and applicable large-scale fire testing that its proposed configuration can operate safely.

If a utility believes additional requirements are necessary, it should demonstrate the additional safety benefit those requirements provide and whether that benefit justifies the resulting costs and impact to ratepayers. The Commission has the authority to ensure that projects meeting NFPA 855 are eligible for consideration in the RFP process and to evaluate whether additional utility-specific requirements are justified.

This matters because requirements beyond those supported by the testing can have significant consequences. Projects designed under NFPA 855 have been permitted, financed, insured, constructed, and operated in Virginia and across the country. Our members' experience demonstrates that additional spacing and configuration requirements can increase project costs and land use, reduce energy density, and ultimately reduce the amount of storage that can be developed on a site.

My comments today will explain how the NFPA 855 safety framework works, what our members experienced under Dominion's previous requirements, and ***why utility-specific spacing or configuration requirements beyond those supported by the national standard and applicable fire testing should be supported by a demonstrated safety benefit and a corresponding benefit to ratepayers.***

How NFPA 855 Works and Preserves Safety

The National Fire Protection Association develops nationally recognized fire and life-safety standards through a consensus process involving fire-safety professionals, engineers, manufacturers, industry experts, and other stakeholders. NFPA 855 is the national safety standard developed specifically for stationary energy storage systems and is now in its third edition.

NFPA 855 combines prescriptive safety requirements with rigorous, system-specific fire and explosion testing under UL 9540A.

The 2026 edition, which is the third iteration of the standards, strengthens this framework with Large-Scale Fire Testing. The test assumes a severe event involving combustion of a battery enclosure and evaluates whether that fire can cause a thermal runaway in adjacent units at the manufacturer's proposed spacing. In other words, spacing is not simply assumed to be safe; the equipment is subjected to severe fire conditions to demonstrate whether the proposed configuration prevents propagation to neighboring units.

The standard also strengthens explosion prevention and fire-containment requirements. Test results are reviewed by qualified professionals and provided to the local government as part of the project's safety review.

This is an important distinction. NFPA 855 does not sacrifice safety to achieve tighter spacing. It uses actual fire performance of the battery system to determine what spacing and other protections are necessary. Depending on the equipment and test results, the appropriate configuration may require greater spacing, fire barriers, or other safeguards.

That is a fundamentally different approach from selecting one distance and applying it to every battery technology regardless of its demonstrated fire performance.

Dominion's Evolution

Dominion's historical 25-foot requirement did not originate with this battery-specific testing framework. As Dominion explained in its 2025 RPS proceeding, the company initially relied on NFPA 850 guidance for medium-voltage transformers when it developed its storage spacing practices beginning in 2021.

Even in 2021, the inaugural 2020 NFPA 855 guidance had basic guidance for spacing. Battery technology, fire testing, codes, and operating experience have advanced significantly since 2020, yet Dominion held onto that 25-foot spacing from 2021-2025.

The 2026 NFPA 855 standard reflects progress, and Dominion's decision to rely on NFPA 855 and UL Large-Scale Fire Testing in its 2026 RFP is an important recognition of that evolution. Dominion's new approach is consistent with Appalachian Power's recent storage RFPs requiring adherence to NFPA 855 without specifying a universal container spacing distance.

The significance of this technical conference is straightforward. Dominion has now moved from a predetermined spacing framework toward an equipment-specific, testing-based safety framework as dictated by Virginia's new energy storage law in 2026. MAREC believes that is the appropriate direction for Virginia from this point forward ***and any deviation from NFPA 855 standards must be justified based on ratepayer cost and improved safety.***

“Less Than 1 Percent”: What We Learned from the Previous Requirements

Although Dominion has changed its approach for the 2026 RFP, the experience under its previous requirements remains important because it demonstrates the potential economic consequences when utility-specific requirements go beyond the national safety framework.

In Dominion's 2025 RPS proceeding, the company estimated that its 25-foot spacing requirement added less than 1% to project costs. Our members' experience indicates that this does not capture the full economic impact.

The issue was never simply the price of additional acreage. Larger footprints can require longer cable runs, additional trenching, roads, grading, stormwater infrastructure, fencing, and electrical equipment. Additional land may not be available at all. Projects may be constrained by interconnection locations, parcel boundaries, zoning, wetlands, setbacks, or other site conditions. When the parcel is fixed, closer spacing means more capacity. The real issue is not simply the cost of additional acreage, but the added project costs, capacity lost, and whether the project can be built at all.

What MAREC Members See

MAREC spoke with several members actively developing or operating battery storage projects in Virginia. Although most project-specific information was provided confidentially, the examples consistently demonstrate that the economic impact of the previous spacing and configuration requirements extended well beyond land acquisition.

The 2021-2025 requirements also governed how containers could be grouped, spacing between those groups, and when firewalls were required. Those configuration requirements could impose additional costs and affect how much storage capacity could be developed on a particular site.

Virginia's electric cooperatives operate under a different business model than Dominion, but their experience provides a useful comparison. Cooperatives have allowed BESS projects with approximately 3- to 10-foot spacing and in some cases even a smaller footprint. Developers have successfully permitted, insured, and constructed projects in cooperative territories using substantially tighter spacing while meeting applicable NFPA 855 requirements.

Here are several examples from our members:

- One member estimates that a 150 MW Virginia storage project could have accommodated approximately 210 MW on the same site using a more typical 10-foot spacing arrangement. That represents approximately 60 MW, or 40%, more capacity. The member estimates that the historical 25-foot requirement increased total project costs by approximately 25% to 30% once the larger footprint, longer cable runs, additional electrical infrastructure, and expanded civil work were considered.

- Another member estimates that land-control costs over 20 years for a 300 MW Virginia project could increase from approximately $364,000 with three-foot spacing to $1 million with 15-foot spacing and as much as $1.8 million with 25-foot spacing. Again, land is only one component of the cost of a larger facility.

- A third member reports that a Virginia project incurred approximately $3.9 million in firewall and related design costs associated with meeting Dominion's previous configuration requirements. Those additional measures were not required by the local permitting authority under the project's original code-compliant design. Initial container spacing for this project was between 3 and 10 feet.

Another example is the City of Danville, VA which has a 10.5 MW battery energy storage that went live in 2022. The purpose of the project is to stabilize energy rates, and the containers were constructed with spacing between 3 and 10 feet. A picture of the project constructed by Lightshift Energy, a Virginia-based company, is below.

The Danville I battery energy storage system on Monument Street. Courtesy of Lightshift Energy.

These are different projects with different geography and site configurations. ***But the examples demonstrate a consistent point that the economic impact cannot be measured solely by calculating the price of additional acreage***. The Commission must also consider added construction costs, the loss of capacity on constrained parcels, and the possibility that otherwise viable projects cannot be built.

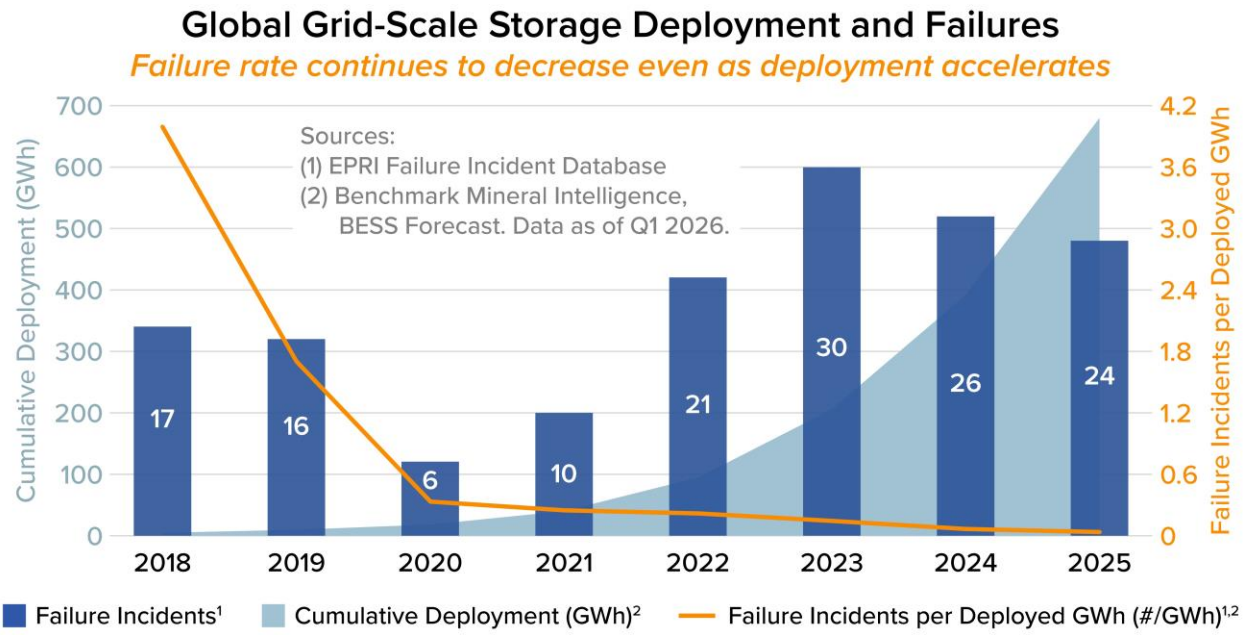
Fluence provides additional context from its national operating experience. Fluence is headquartered in Arlington, VA and is a major provider of utility-scale battery energy storage hardware, software, and services. Its equipment is deployed in nearly 90 operating projects across 18 states. ***All their projects have been financed and insured without a comparable universal 25-foot spacing requirement. Enclosure spacing varies based on project requirements and space constraints, but all projects meet NFPA 855 minimum spacing requirements without significant site-to-site variance.***

Industry Safety Performance

The Electric Power Research Institute or EPRI has a database on global grid scale energy storage deployment and failures, and it tells a similar story at the industry level. EPRI is an industry leader in this type of data.

The number of incidents is not zero, but the failure rate per deployed GWh has fallen sharply as global deployment has accelerated. That is evidence of a more mature technology and safety framework and reason to use the latest evidence rather than maintain Dominion's unsubstantiated container spacing standard of 25 feet that was not required for any other utility. Dominion introduced the 25-foot spacing standard in 2021 and there has been an asymptotic decline in failure rates nationally since that time.

(link: https://energystorage.epri.com/hub/public/en/failure-incident-database.html)



At the same time, safety standards have continued to evolve. NFPA 855 is now in its third edition; UL fire-testing protocols have advanced, manufacturers have improved thermal-runaway prevention and containment, and the industry has accumulated considerably more operating experience.

This is precisely why safety requirements should evolve with evidence.

Dominion's decision to use the 2026 NFPA 855 framework and Large-Scale Fire Testing rather than continue its previous spacing supplement reflects that evolution and why the General Assembly passed legislation requiring adherence to NFPA 855 standards for the 2026 year.

Cost, Siting, and Ratepayer Impacts

This issue also has implications for Virginia's grid and ratepayers.

Storage is particularly valuable when it can be located where the grid needs it. Dominion has testified to the significant locational value of storage in Northern Virginia. Yet land near load centers, transmission infrastructure, and substations is precisely where parcels tend to be constrained and expensive, and where competing uses such as data centers can increase land values.

Unnecessarily large project footprints can therefore make it harder to locate storage where it provides the greatest grid value. They increase land disturbance and civil and electrical work and can push projects toward larger rural parcels even when a smaller site closer to load would be operationally superior.

Cost also matters because storage projects are already facing significant economic scrutiny.

In the 2024 RPS solicitation, Dominion received 18 proposals for stand-alone storage PPAs. Four were selected, and all four were withdrawn for permitting or economic reasons.

In a subsequent proceeding, Dominion sought approval to own or procure approximately 155 MW/620 MWh of battery storage. SCC Staff recommended rejecting 17 of 21 individual solar and battery storage projects because of cost, including both battery projects, which Staff viewed as presenting significantly negative ratepayer value.

That context matters.

Even if a particular requirement adds only 1% to project cost, 1% of a $200 million project is approximately $2 million. These costs can potentially compound with other, unrelated, cost drivers to make a project uneconomic. More importantly, ratepayers should not bear additional costs unless those costs are associated with a demonstrated safety or system benefit.

Dominion's 2026 RFP approach provides a useful path forward: use nationally recognized battery-specific safety standards and actual fire-testing results to determine appropriate project configurations.

Recommendations

MAREC recommends that the Commission establish a clear framework that builds upon the approach Dominion has now adopted for its 2026 RFP.

- First, NFPA 855 should serve as the baseline battery-specific safety framework, including applicable UL 9540A and Large-Scale Fire Testing requirements as required in Virginia's new storage law for all future utility RFPs and procurements.
- Second, project applicants should provide the information necessary for meaningful safety review, including applicable fire-test results, hazard mitigation analysis where required, emergency response and operations planning, and coordination with local fire officials and the local government
- Third, spacing should be determined from the applicable national standard, equipment-specific testing, and site condition not from a predetermined statewide distance. The appropriate distance may differ among technologies and installations because the standard requires the safety of the actual configuration to be demonstrated.
- ***Finally, if Dominion or Appalachian Power seeks to impose a requirement more restrictive than the applicable national safety framework, the utility should bear the burden of demonstrating why the additional requirement is necessary.*** At a minimum, the utility should provide the engineering basis for the requirement, identify the evidence demonstrating that compliance with the national framework is insufficient, and quantify the resulting project cost, land-use, capacity, and ratepayer impacts.

This approach recognizes the appropriate roles of each participant. National standard-setting organizations establish the consensus safety framework. Testing laboratories evaluate the actual equipment. Developers design projects and document compliance. Local fire and building officials evaluate site-specific conditions and emergency response. Utilities evaluate procurement and system needs.

The Commission's role is to ensure that any additional utility-specific requirement is reasonable, evidence-based, and cost-effective.

Closing

The Commission's choice is not between safety and project economics.

The 2026 edition of NFPA 855 provides a rigorous, battery-specific framework that uses large-scale fire testing to evaluate whether fire can propagate between battery units and inform safe project configurations.

Dominion's decision to rely on that framework for its 2026 RFP is an important and constructive development. MAREC believes the Commission should build on that approach and establish NFPA 855 and equipment-specific testing as the foundation for storage safety in Virginia going forward.

MAREC supports rigorous safety requirements. We also believe those requirements should reflect national safety standards, technological progress, actual testing, and operating experience.

Our members remain committed to developing energy storage projects that are safe, affordable, and provide reliability to Virginia's grid. A clear, evidence-based framework built around NFPA 855 will protect communities while allowing storage projects to be financed, permitted, built, and located where the grid needs them most.